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Cyril Chevillard

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/766,672	<b>Applicant(s)</b> CHEVILLARD ET AL.	
	<b>Examiner</b> JEFFREY WOLLSCHLAGER	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2,4,5 and 8-34 is/are pending in the application.
- 4a) Of the above claim(s) 8-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4,5 and 26-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment to the claims filed December 11, 2008 has been entered. Claims 2, 4, 28, and 31 are currently amended. Claim 34 is new. Claims 1, 3, 6 and 7 have been canceled. Claims 8-25 remain withdrawn from further consideration. Claims 2, 4, 5, and 26-34 are under examination.

### ***Specification***

The amendment filed December 11, 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "In one or more embodiments, where the instability kappa of from 0.2 to 0.045". The examiner notes that this language was originally introduced in new claim 27 filed on November 14, 2007. The language was not part of the original disclosure. Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 4, 5 and 26-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in

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the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claim 31, the claim recites the melt flow index of the second polymer is determined by ASTM D1238 condition G. The examiner submits that this limitation is not supported by the original disclosure. Applicant points to the background section of the invention which incorporates by reference the Sosa et al. patent (a patent directed to a reaction and devolatilization process for preparing monovinyl aromatic polymers, such as polystyrene) into the disclosure as providing support for this limitation (paragraph [0003] in the instant application published as US 2005/0161858). However, the examiner submits that there is no indication in the instant disclosure, either implicitly or explicitly, that the melt flow index measurement set forth in Sosa et al. (Table III, footnote c) is the standard by which the melt flow index is to be measured in the instant application for the second polymer. Additionally, claim 27 recites the instability kappa is as low as 0.045. There does not appear to be support for such an instability kappa limitation in the original disclosure. As shown in Figure 2B and recited in Table 1, the lowest disclosed instability kappa value is 0.142. Claims 2, 4, 5, 26, 28-30, 32, 33 and 34 are rejected as dependent claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 4, and 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. (US 4,188,432).

Regarding claims 31 and 34, Holden et al. teach a method of producing shaped articles by extrusion or injection molding processes comprising providing a composition that ranges from 60-93 parts by weight of component A (col. 6, lines 7-12) wherein component A is high impact polystyrene (i.e. HIPS) or a mixture of high impact polystyrene with less than about 55% thermoplastic styrene homopolymer (i.e. GPS) (col. 5, lines 36-40; col. 6, lines 46-50). The GPS resin (i.e. the second polymer) has a melt flow index, as determined by ASTM D-1238 condition G, ranging from 5-25 g/10 min (col. 6, line 60 - col. 7, line 10; col. 10, line 44; Table 1). The HIPS and the GPS/second polymer are melt blended with other components (e.g. Component B and Component C) (col. 6, lines 12-19) and processed to form a polystyrene article. (col. 9, lines 58-64; col. 13, lines 23-28; col. 14, lines 26-30).

While Holden et al. teach the GPS/second polymer has a melt flow index range that overlaps with the claimed melt flow index range and further teaches a weight percentage range of HIPS that overlaps with the claimed weight percentage of HIPS, Holden et al. do not explicitly teach or exemplify an embodiment wherein both conditions are met at the same time. However, Holden et al. do teach that the articles made from the compositions within the specified ranges produce satisfactory physical properties (col. 5, lines 46-55) and further suggest that the specific melt flow properties (i.e. melt flow index) of the resin can be selected by the ordinarily skilled

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artisan in view of the intended application and processing method to be employed (col. 8, line 59-col. 9, line 2).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention, in view of the individual teachings of Holden et al., to have employed a GPS resin within the melt flow index range of suitability set forth by Holden et al. (e.g. values up to 20 or 25 g/10 min) while utilizing greater than 50 weight percent HIPS, as also individually set forth by Holden et al., since Holden et al. suggest compositions within the specified ranges produce satisfactory physical properties (col. 5, lines 46-55) and since Holden et al. further suggest that the specific melt flow properties of the resins to be employed can be selected by the ordinarily skilled artisan in view of the intended application and processing method to be employed (col. 8, line 59-col. 9, line 2). As such, the examiner submits that Holden et al. establish the melt flow index of the resins to be employed as a result effective variable that would have been readily optimized.

As to claim 2, Holden et al. teach the HIPS has a melt flow index ranging from 1.5 – 10 g/10 min (col. 7, lines 5-10; col. 10, line 44; Table 1).

As to claims 4 and 27, the examiner recognizes that Holden et al. do not expressly recite that the product produced has improved melt stability relative to a product made from HIPS without the second polymer as set forth in the claims. However, Holden et al. render claim 31 obvious as set forth above. As such, Holden et al. render the claimed effects and physical properties realized by the practice of the method of claim 31 obvious. Said differently, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. melt instability) would be implicitly present in the article produced by Holden et al.

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As to claim 26, the examiner recognizes that Holden et al. do not expressly recite the claimed melt strength of the article. However, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. melt strength) would be implicitly present in the article produced by Holden et al.

As to claim 28, Holden et al. disclose Izod impact values within the claimed range (Table 3). Further, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. izod impact) would be implicitly present in the article produced by Holden et al.

As to claim 29, Holden et al. disclose an article having flexural strength within the claimed range (Table 3). Further, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. flexural strength) would be implicitly present in the article produced by Holden et al.

As to claim 30, Holden et al. do not expressly recite the produced article has a molecular weight as claimed. However, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. final molecular weight) would be implicitly present in the article produced by Holden et al. Additionally, Holden et al. suggest the inverse relationship between melt flow index and molecular weight and suggest optimizing the melt flow index of the polymer, as required, to achieve the desired final article (col. 8, line 59-col. 9, line 2). As such, the examiner submits one having ordinary skill would have readily optimized the

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molecular weight of the article by optimizing the melt flow index of the polymers to be processed, as suggested by Holden et al.

As to claim 32, the “consists essentially of” language in the claims is noted. The transitional phrase “consists essentially of” limits the scope of the claim to the specified materials or steps “and those that do not materially affect the basic and novel characteristics” of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). For search and examination purposed, absent a clear indication in the specification of what the basic and novel characteristics actually are, “consists essentially of” will be construed as equivalent to “comprising.” When an applicant contends that additional steps or materials in the prior art are excluded by the recitation “consists essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant’s invention. *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also *Ex parte Hoffman*, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989). Because no evidence has been set forth on the record to show that the use of Component B and Component C as set forth by Holden et al. would materially affect the basic and novel characteristics of the instantly claimed invention, their use is considered to fall within the scope of the instant claim.

As to claim 33, Holden et al. teach the GPS/second polymer can be employed at levels ranging from 0 to about 55 weight percent (col. 6, lines 7-12 and 46-50).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. (US 4,188,432), as applied to claims 2, 4, and 26-34 above, and further in view of Agarwal (US 5,541,285) and Kaulbach et al. (US 6,713,141).



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As to claim 5, Holden et al. teach and suggest the method of claim 31 as set forth above. Holden et al. do not expressly teach the claimed extrusion shear rate. However, Kaulbach et al. disclose that it is known in the extrusion art that the extrusion speed/shear rate and degradation of the polymer are directly proportional properties. As the extrusion speed/shear rate increases, the degradation of the polymer increases (col. 1, lines 50-67). Additionally, Agarwal generally discloses that extruder speeds corresponding to shear rates up to about 10,000/s are known (col. 3, lines 45-47).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Holden et al. and to have extruded the material at a shear rate within the claimed range of about 1,000 to about 15,000/s since Agarwal teach shear rates within the claimed range, up to about 10,000/s, are known and Kaulbach et al. suggest optimizing the speed/shear rate to control degradation. Implicitly, in view of the combination, one having ordinary skill would have optimized the speed/shear rate of the extruder in Holden et al. in order to maximize productivity while producing a product with an acceptable degree of polymer degradation.

### ***Response to Arguments***

Applicant's arguments filed December 11, 2008 have been fully considered, but they are not persuasive. Regarding the 35 USC 112 first paragraph rejection, applicant argues that the measurement of melt flow index is well known to one skilled in the art. This argument is not persuasive. The examiner notes that there are a large variety of methods employed to measure melt flow index (e.g. various ASTM and ISO conditions). It is the examiner's position that the original disclosure does not provide the required support under 35 USC 112 first paragraph to amend the claim to recite "ASTM D1238 condition g".

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Applicant argues that Holden does not teach melt blending HIPS and the polymer because Holden teaches dry-blending of components not melt blending. This argument is not persuasive. The examiner submits that mixing dry materials together and then adding those materials to an extruder to melt and mix them in the melt phase clearly meets the requirement to melt blend. Said differently, extrusion is a melt blending technique. Holden teaches extruding the composition in a screw extruder (col. 9, lines 58-64; col. 13, lines 23-28) and therefore teaches melt blending.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. W./

Examiner, Art Unit 1791

March 4, 2009

/Monica A Huson/

Primary Examiner, Art Unit 1791